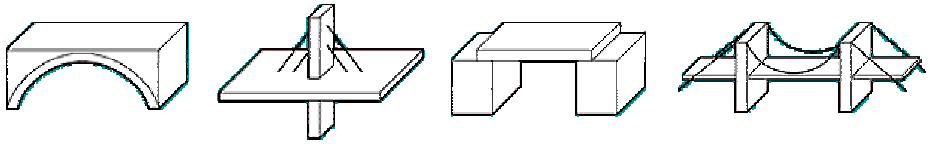
NATIONAL ENGINEERS WEEK 200X
THE UNITED STATES NAVAL ACADEMY CHAPTER OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS *BRIDGE BUILDING COMPETITION*



1. The U.S. Naval Academy's chapter of the American Society of Mechanical Engineers is sponsoring a bridge building competition in conjunction with National Engineers Week [a]. The competition will be held in Rickover Hall on the Naval Academy grounds in late February 200X. Students can sign up for the competition in teams of no more than four. Prizes will be awarded to the winning team and runner up. There is no limit to the number of teams that a school may sponsor. Point of contact at USNA is Asst. Prof. Michelle Koul (410.293.6532, koul@usna.edu).

2. The contest procedure is as follows:
   - Bridge will be examined by a contest official to verify that it meets the **specifications listed below**. UNSAT bridges will either require modification or will result in disqualification.
   - Bridge weight will be measured and recorded.
   - The maximum load that can be supported by the bridge will be measured by loading the bridge at the middle of the span until failure.

   Using this information, the peak load to weight ratio of the bridge will be calculated. This ratio will be compared to that of the other bridges in order to determine competition standings. In short, the highest peak load to weight ratio will win.

RULES:

1. After signing up, participants will receive 250 Popsicle sticks and a container of Elmer's white glue to build their bridge. Bridges entered in the competition must weigh no more than **0.75-lbs**.
2. Any tools may be used in building, but no other building materials may be used. Only the material provided by ASME may be used in the construction of the bridge. Failure to adhere to this rule will result in disqualification.
3. Bridges must be able to rest **unanchored** across a span of **18-in.** Bridges may **not** be wedged in-between the two supports of the test fixture.
4. The test fixture is shown in **Figures 1 and 2**. The bridge must be constructed so that it can be simply supported on the supports with a span of **18-in.** There must be sufficient clearance for the one **1-in.** diameter-loading pin and **2-in.** diameter loading rod to be placed across the road surface at mid-span to apply force to the bridge.
5. Bridge may stand no more than **10-in.** above the supports and **2-in** below the supports.
6. Bridge must be between **3 and 3.5-in.** wide with a continuous, flat, road surface across the entire span.
7. Bridges will be tested to failure. Some bridges will fail with a sudden snap and others will flex and bend. Failure will be defined as a drop in the supported load of 20% **OR** a deflection at mid-span in excess of 1-in.
8. Bridges that do not comply with the rules will not be eligible for the competition.

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[a] Info available at: http://www.usna.edu/NAOE/new and http://www.eweek.org.

TIPS:

A. Take the time to let the glue dry between stages of building.
B. Be sure your bridge has adequate clearance for the loading bar.
C. Make sure your bridge is long enough to rest securely across the 18-in. span.
D. Plan carefully before building.
E. Take pictures of your bridge when you are done. Bridges will be tested to failure means we are going to demolish your bridge!

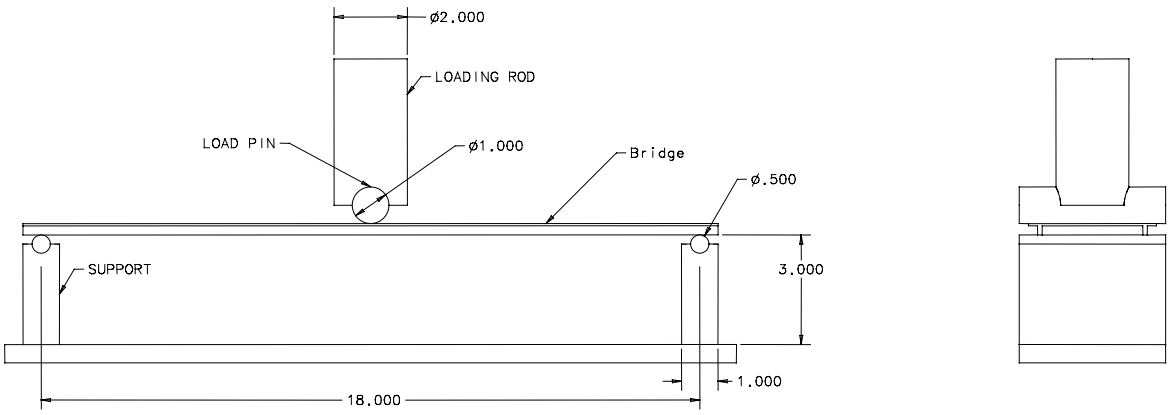

Figure 1

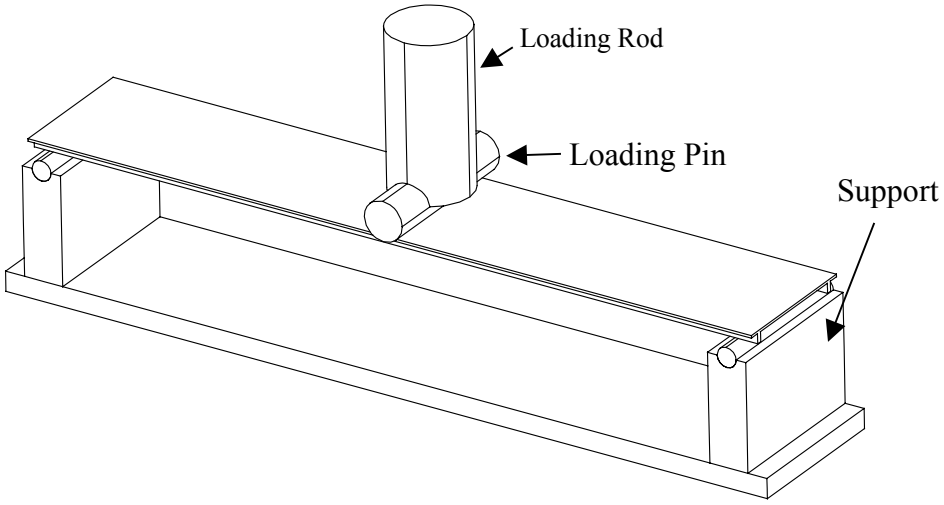

Figure 2